

REMARKS

In response to the Office Action mailed May 16, 2006, Applicants respectfully request reconsideration. Claims 1-46 were previously pending in this application. By this amendment, Applicants are canceling claims 3 and 23 without prejudice or disclaimer. Claims 1, 2, 12, 14, 15, 17, 21, 22, 32, 34, 35, 37, 41, and 42 have been amended. New claims 47-68 have been added. As a result, claims 1, 2, 4-22, and 24-68 are pending for examination with claims 1, 17, 20, 21, 37, 40, 41-46, and 65 being independent. The application is believed to be in condition for allowance.

Allowable Subject Matter

Applicants note with appreciation the indication of allowable subject matter in claims 11, 13, 15, 16, 18-20, 31, 33, 35, 36, 38-40, and 43-46.

Rejections Under 35 U.S.C. §102 and 35 U.S.C. §103

The Office Action rejects claims 1-8, 12, 14, 17, 21, 22, 24-28, 32, 34, 37, 41, and 42 under 35 U.S.C. §102 as being anticipated by Thomas et al., U.S. Patent No. 5,798,828 (Thomas). The Office Action also rejects claims under 35 U.S.C. §103(a). Specifically, claims 3 and 23 as being unpatentable over Thomas in view of Stirland et al., U.S. Patent No. 3,723,013 (Stirland); claims 9 and 29 as being unpatentable over Thomas in view of Toshio, Japanese Patent No. JP 60006811; and claims 10 and 30 as being unpatentable over Thomas in view of Pund, U.S. Patent No. 5,592,285. Applicants respectfully traverse these rejections.

Discussion of Thomas and Stirland:

Independent claims 1, 17, 21, and 37 have been amended to include the limitation of canceled claims 3 and 23. Claims 3 and 23 were rejected as being unpatentable over Thomas et al. in view of Stirland.

Thomas illustrates a laser-based multi-axis position measurement unit that emits two parallel laser beams (abstract). The laser beam unit is aligned and oriented in such a manner that

the two parallel laser beams emitted by the laser unit are substantially parallel to the direction of travel of a moving part of an object (Col. 2, lines 58-61).

Stirland has been cited as showing “a beam with a cross-shaped cross-section” (Office Action; page 4, paragraph 3). Stirland illustrates an alignment system that utilizes intermediate photo-detectors having central apertures, with each photo-detector having four quadrants of active area (abstract). The center 48 of the photo-detector 60 is aligned to the axis of a laser beam 30, with the photo-detector output signal being utilized to indicate alignment or the degree of misalignment of their centers with respect to the axis of the laser beam (abstract, Figure 1). As shown in Figure 1, the laser beam 32 is transmitted through the circular apertures of the photo-detectors 60, with the third photo-detector, on the top surface 224, being a terminal detector and not comprising an aperture. Figure 3 (relied upon by the Office Action) shows a photo-detector with non-transmissive four quadrants 52 of photosensitive material and a central circular aperture 48. Misalignment may be determined by measuring where the laser beams illuminate the photosensitive material.

The Claimed Invention Distinguishes Any Combination of Thomas and Stirland:

The Office Action concedes that Thomas does not teach or suggest a beam having a substantially cross-shaped cross-section but asserts that Stirland discloses such a beam, referring to Figures 3 and 11. Applicants respectfully disagree.

Nowhere in Stirland is the use of a beam having a substantially cross-shaped cross-section taught or suggested. The Office Action relies on Figures 3 and 11, but these figures teach the use of a *photo-detector* comprising non-transmissive four quadrants of photo-sensitive material and *not* a cross-shaped cross-section beam. Furthermore, as may be seen from Figure 1, the laser beam 32 with axis 30 is transmitted through a *circular* aperture 48 of photo-detectors 60. Therefore, if one of skill in the art were to combine the teachings of Thomas with the teachings of Stirland to more accurately determine the position of the beam on the array of detectors, the combination would yield the system of Thomas with the quadrant photo-detectors of Stirland.

Discussion of the Claims:

Amended claim 1 requires “an electromagnetic radiation source coupled to the object, the electromagnetic radiation source emitting a *cross-shaped cross-section* beam.” As should be appreciated from the discussion above, no combination of the prior art of record teaches or suggests the use of a cross-shaped cross-section beam. Therefore, claim 1 patentably distinguishes the prior art of record. Claims 2, 4-10, 14, and 47-49 depend from claim 1 and therefore patentably distinguish for at least the same reasons.

Amended claim 17 (from which claims 50-52 depend), amended claim 21 (from which claims 22, 24-30, 33, 34, and 53-55 depend), amended claim 37 (from which claims 56-58 depend), amended claim 41, and amended claim 42 all require a *cross-shaped cross-section* beam. Therefore, as should be appreciated from the above discussion relating to claim 1, the above mentioned claims patentably distinguish the prior art of record for at least the same reasons.

New dependent Claims 59-61 and 62-64 depend from allowed independent Claims 20 and 40, respectively, and therefore should also be allowed for at least the same reasons.


New independent Claim 65 is directed towards an apparatus for determining changes in the shape of an object, the object being selected from a group consisting of a building, a bridge and a tower. The prior art of record does not teach or suggest an apparatus for determining changes in the shape of a building, bridge, or tower. Thus, newly added Claim 65 (from which new claims 66-68 depend) patentably distinguishes the prior art of record.

CONCLUSION

In view of the above amendments and remarks, it is believed that all claims are in condition for allowance, and it is respectfully requested that the application be passed to issue. If the Examiner feels that a telephone conference would expedite prosecution of this case, the Examiner is invited to call the undersigned.

Respectfully submitted,

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